



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,277	05/11/2006	Hiroyuki Koyama	YH0023-US1	5641
27788 7590 12/22/2010 Tyco Electronics Corporation 309 Constitution Drive Mail Stop R34/2A Menlo Park, CA 94025				
EXAMINER				
LEE, KYUNG S				
ART UNIT		PAPER NUMBER		
2833				
MAIL DATE		DELIVERY MODE		
12/22/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/562,277

**Applicant(s)**

KOYAMA, HIROYUKI

**Examiner**

Kyung Lee

**Art Unit**

2833

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 October 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 8-18 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 14-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-5, and 8-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10052010
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

#### **Claim Rejections - 35 USC § 103**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue, EPO-08250304 [hereon EP304] in view of Hasunuma et al., US Pub. 2002/0181182.

EP304 teaches a PTC thermistor 1, and a pair of electrodes 2 and 3 which are bonded to the PTC thermistor 1 via solder 4. The solder 4 deteriorates in an overheated [over-current or overvoltage] state to prevent damage to the circuit [abstract]. Regarding claims 3 and 5, the electrodes are bonded via solder.

EP304 teaches the claimed invention except for the PTC resistive element comprising of a conductive polymer.

Hasunuma teaches a PTC thermistor being composed of a polymeric component and dispersed therein are conductive fillers [0012] which are added to control PTC behavior [0029-0030]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used a polymeric element with conductive fillers for thermistor as taught by Masunuma as a substitute for the thermistor element of EP304, since the polymeric thermistor can be controlled to provide an accurate range of PTC behavior, thus increasing market appeal.

Regarding claims 3 and 4, Hasunuma teaches that the electrodes 13 and 15 may be welded to the PTC [0041], and the thermal fusing element 4 may be solder or a conductive adhesive [0035].

3. Claims 3, and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP304 and Hasunuma.
4. EP304 and Hasunuma teach the claimed invention except for the adhesive comprised of a thermoplastic resin, thermosetting resin, or conductive powder. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use solder or a conductive adhesive [as taught by EP304 and Hasunuma] since the examiner takes Official Notice of the equivalence of solder, or conductive adhesive and thermoplastic or thermosetting resin, or conductive powder for their use in the bonding/connection of electrodes and the selection of any of these known equivalents to be within the level of ordinary skill in the art.

#### **Response to Arguments**

5. Applicant's arguments with respect to claims 1, 3-5, and 8-13 have been considered but are moot in view of the new ground(s) of rejection.

#### **Conclusion**

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyung Lee whose telephone number is (571)272-1994. The examiner can normally be reached on Mon to Thur from 5:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Renee Luebke can be reached on (571)272-2009. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kyung Lee/  
Primary Examiner, Art Unit 2833